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PRELIMINARY AMENDMENT
National Stage Entry
of PCT/EP03/006509

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1-27. (Cancelled).

Claim 28. (New) A method for *in vitro* regeneration comprising the following steps:

- provision of a liver sectate *in vitro*,
- induction of a significant structural growth of the sectate compared with an untreated sectate(control) through administration of EFO, TPO, GH or derivatives thereof on the liver resection surface; and
- where appropriate, use of the treated sectate for the treatment of liver disorders.

Claim 29. (New) The method as claimed in claim 28 for multiplying and differentiating cells *in vitro*, characterized in that the growth process of the cells is initiated and terminated, and structurally guided, through the use of the growth factors thrombopoietin (TPO) and/or erythropoietin (EPO), and/or growth hormone (GH), in particular human growth hormone (HGH), and/or somatostatin and/or leukemia inhibitory factor (LIP) and/or ciliary neurotropic factor (CNTF).

Claim 30. (New) The method as claimed in claim 29, characterized in that transforming growth factor beta (TGF beta), prostaglandin, granulocyte-macrophage stimulating factor (GM-CSF), growth hormone releasing hormone (GHRH),

thyrotropin-releasing hormone (TRH), gonadotropin-releasing hormone (GnRH), corticotropin-releasing hormone (CRH), dopamine, antidiuretic hormone (ADH), oxytocin, prolactin, adrenocorticotropin, beta-celitropin, lutrotropin and/or vasopressin is employed additionally as growth factor.

Claim 31. (New) The method as claimed in claim 29 or 30, characterized in that one or more nerve regeneration factors, preferably nerve growth factor (NGF) and/or one or more vessel regeneration factors, preferably vascular endothelial growth factor (VEGF) and/or platelet derived growth factor (PDGF) are employed in addition.

Claim 32. (New) The method as claimed in at least one of claims 29-31, characterized in that the method is carried out in the presence of endothelial cells.

Claim 33. (New) The method as claimed in at least one of claims 29 to 32, characterized in that the growth process of the cells is locally initiated and terminated, and structurally guided.

Claim 34. (New) The method as claimed in claim 33, characterized in that the growth process of the cells is locally initiated and terminated, and structurally guided, by a biological matrix or by a supporting structure.

Claim 35. (New) The method as claimed in claim 34, characterized in that the biological matrix or supporting structure is treated with one of said growth factors or with a combination of said growth factors as mixture or sequentially.

Claim 36. (New) The method as claimed in claim 34 or 35, characterized in that an implant, a transplant and/or a

supporting material is used as biological matrix or as supporting structure for the growth of cells.

Claim 37. (New) The method as claimed in at least one of claims 29 to 36, characterized in that the biological matrix or supporting structure has been precolonized with cells, preferably tissue-specific cells, precursor cells, bone marrow cells, peripheral blood, adipose tissue and/or fibrous tissue, or already prepared *in vitro* for the *in vivo* colonization or the inductive remodeling.

Claim 38. (New) The method as claimed in at least one of claims 29-37, characterized in that adult progenitor cells and/or tissue-specific cells, preferably osteoblasts, fibroblasts, hepatocytes and/or smooth muscle cells, are employed as cells.

Claim 39. (New) The method as claimed in at least one of claims 29-38 for locally specific and/or directed multiplication, structural growth and subsequent differentiation of adult cells and/or for regeneration of bones, tissues and/or endocrine organs.

Claim 40. (New) The method as claimed in at least one of claims 29 to 32, characterized in that the cell aggregates which form where appropriate during the growth process are broken up and, where appropriate, encapsulated and, where appropriate, frozen by means of a suitable device.

Claim 41. (New) A biological matrix or supporting structure comprising at least one of the growth factors TPO, EPO, GH, especially HGH, somatostatin, LIF and/or CNTF.

Claim 42. (New) The biological matrix or supporting structure as claimed in claim 41, additionally comprising at least one of the growth factors TGF beta, prostaglandins, GM-CSF, GHRH, TRH, GnRH, CRH, dopamine, ADH, oxytocin, prolactin, adrenocorticotropin, beta-celltropin, lutrotropin and/or vasopressin and, where appropriate, additionally one or more nerve regeneration factors, preferably NGF and/or one or more vessel regeneration factors, preferably VEGF and/or PDGF.

Claim 43. (New) The biological matrix or supporting structure as claimed in claim 41 or 42, characterized in that the biological matrix or supporting structure is an implant, a transplant and/or a supporting material for the growth of cells.

Claim 44. (New) The biological matrix or supporting structure as claimed in any of claims 41 to 43, characterized in that the biological matrix or supporting structure is a stent, a patch, a catheter, a skin, a hydrogel, a bone substitute material, an allogeneic, autologous or xenogeneic, acellularized or non-acellularized tissue, a synthetic tissue, a feeder layer or a fabric.

Claim 45. (New) The biological matrix or supporting structure as claimed in any of claims 41 to 44, characterized in that the biological matrix or supporting structure is precolonized with cells, preferably tissue-specific cells, precursor cells, bone marrow cells, peripheral blood, adipose tissue and/or fibrous tissue.

Claim 46. (New) The biological matrix or supporting structure as claimed in any of claims 41 to 45, characterized in that the biological matrix or supporting structure is coated

with a biodegradable (bio)polymer layer comprising at least one of said growth factors.

Claim 47. (New) A method for producing a biological matrix or supporting structure as claimed in at least one of claims 41 to 46, characterized in that an optionally activated biological matrix or supporting structure is coated with at least one of the growth factors TPO, EPO, GH, especially HGH, somatostatin, LIF and/or CNTF.

Claim 48. (New) The method as claimed in claim 47, characterized in that said matrix or supporting structure is coated with additionally at least one of the growth factors TGF beta, prostaglandin, GM-CSF, GHRH, TRH, GnRH, CRM, dopamine, ADH, oxytocin, prolactin, adrenocorticotropin, beta-celitropin, lutrotropin and/or vasopressin and, where appropriate, additionally with one or more nerve regeneration factors, preferably NGF and/or one or more vessel regeneration factors, preferably VEGF and/or PDGF.

Claim 49. (New) The method as claimed in claim 47 or 48, characterized in that the biological matrix or supporting structure is activated by means of plasma ionization or laser activation.

Claim 50. (New) The method as claimed in at least one of claims 47 to 49, characterized in that said biological matrix or supporting structure is precolonized *in vitro* with cells, preferably tissue-specific cells, precursor cells, bone marrow cells, peripheral blood, adipose tissue and/or fibrous tissue.

Claim 51. (New) A device for carrying out a method as claimed in at least one of claims 29 to 40 and 48 to 50.

Claim 52. (New) The device as claimed in claim 51, characterized in that the device is a perfused bioreactor, preferably in the form of a closed system.